

**ABSTRACT OF THE DISCLOSURE**

A manufacturing process for fabricating field effect transistors is disclosed comprising the generation of a strained surface layer on the surface of the substrate on which the transistor is to be fabricated. The strained surface layer is generated by implanting xenon and/or other heavy inert ions into the substrate. Implantation can be performed both after or  
5 prior to the gate oxide growth. The processing afterwards is carried out as in conventional MOS technologies. It is assumed that the strained surface layer improves the channel mobility of the transistor.